



THE **X** CONCEPT FOR OUR FILTERS

Protect the performance of your system with MYclean.

Quality and efficiency are fundamental for MP Filtri: this exclusive new filter element possesses polygon shape geometry and specific seal that ensures only original spare parts can be used - ensuring correct operation and higher system reliability.

+

zerospark®

THE ANTI-STATIC FILTERS

THE **Z** CONCEPT FOR OUR FILTERS

Zerospark® is a specialist solution designed to solve the problem of electrostatic discharge inside hydraulic filters. Caused by the electrical charge build-up due to the passage of oil through the filters, this can result in damage to filter elements, oils and circuit components. It can even cause fire hazards in environments where flammable materials are present.



FMMX ATEX series 

with  + **zerospark®**

HPX Filter Element

- ◆ **Protects the machine from improper use of non-original products.**
- ◆ **Safety of constant quality protection & reliability**

With exclusive filter element you are sure that only MP Filtri filter elements can be used, ensuring the best cleaning level of the oil due to the use of originals filter elements.

The products identified as FMMX series are protected by:

- ◆ Italian Patent n° 102014902261205
- ◆ Canadian Patent n° 2,937,258
- ◆ European Patent n° 3 124 092 B1
- ◆ US Patent n° 20170030384 A1

FMMX series

Maximum working pressure up to 42 MPa (420 bar) - Flow rate up to 300 l/min



INSTALLATION, SERVICE AND MAINTENANCE MANUAL AND SAFETY INSTRUCTIONS



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Description

Technical data

Filters for potentially explosive atmosphere

In-line

Maximum working pressure up to 42 MPa (420 bar)

Flow rate up to 300 l/min

FMMX is a range of versatile high pressure filter for protection of sensitive components in high pressure hydraulic systems in the mobile machines. They are directly connected to the lines of the system through the hydraulic fittings.

Available features:

- Female threaded connections up to 1 1/4", for a maximum flow rate of 250 l/min
- Fine filtration rating, to get a good cleanliness level into the system
- Bypass valve, to relieve excessive pressure drop across the filter media
- Low collapse filter element with external support "N", for filter element protection against the back pressure caused by the check valve in filters provided with the bypass valve
- Visual, electrical and electronic differential clogging indicators
- MYclean interface connection for the filter element, to protect the product against non-original spare parts

Common applications:

- Agricultural machines
- Mobile machines

Filter with:

NBR seal in configuration **zerospark+**



II 3G Ex h IIC T6 Gc X
II 3D Ex h IIIC T85°C Dc X

FPM seal in configuration

zerospark+



II 3G Ex h IIC T6... T4 Gc X
II 3D Ex h IIIC T85°C...T115°C Dc X

Filter housing materials

- Head: Painted cast iron, black RAL 9005
- Housing: Phosphatized steel
- Bypass valve: Steel

Pressure

- Test pressure: 63 MPa (630 bar)
- Burst pressure: 126 MPa (1260 bar)
- Pulse pressure fatigue test: 1 000 000 cycles with pressure from 0 to 42 MPa (420 bar)

Bypass valve

- Opening pressure 600 kPa (6 bar) ±10%
- Other opening pressures on request.

Δp element type

- Microfiber filter elements - series N: 20 bar
- Wire mesh filter elements - series N: 20 bar
- Fluid flow through the filter element from OUT to IN

Seals

- Standard NBR series A
- Optional FPM series V

Connections

In-line Inlet/Outlet

Note

FMMX filters are provided for vertical mounting

Temperature

Seals	Ambient Temperature	Max fluid Temperature	Temperature Class	Max surface temperature
NBR	-15 °C ÷ +80 °C	+80 °C	T6	T85 °C
FPM	-15 °C ÷ +80 °C	+80 °C	T6	T85 °C
	-15 °C ÷ +95 °C	+95 °C	T5	T100 °C
	-15 °C ÷ +110 °C	+110 °C	T4	T115 °C

Weights [kg] and volumes [dm³]

Filter series	Weights [kg]					Volumes [dm³]						
	Length	1	2	3	4	5	Length	1	2	3	4	5
FMMX 050		3.11	3.48	3.90	4.36	5.54		0.34	0.48	0.63	0.81	1.23
FMMX 150		7.50	9.50	10.90	-	-		0.60	1.00	1.25	-	-

Flow rates [l/min]

Filter series	Length	Filter element design - N Series					
		A03	A06	A10	A16	A25	M25
FMMX 050	1	42	43	79	82	106	147
	2	52	57	85	96	121	149
	3	66	69	97	106	130	150
	4	83	89	113	115	134	152
	5	107	110	130	134	141	154
FMM 150	1	81	88	156	163	179	295
	2	142	145	227	230	236	312
	3	170	180	242	245	263	315

Maximum flow rate for a complete pressure filter with a pressure drop $\Delta p = 1.5$ bar.

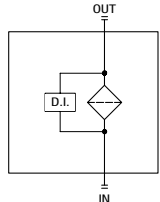
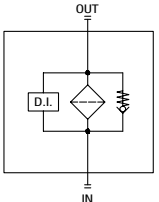
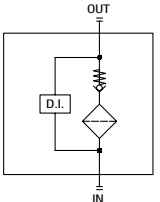
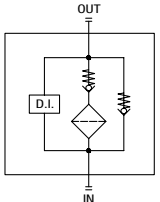
The reference fluid has a kinematic viscosity of 30 mm²/s (cSt) and a density of 0.86 kg/dm³.

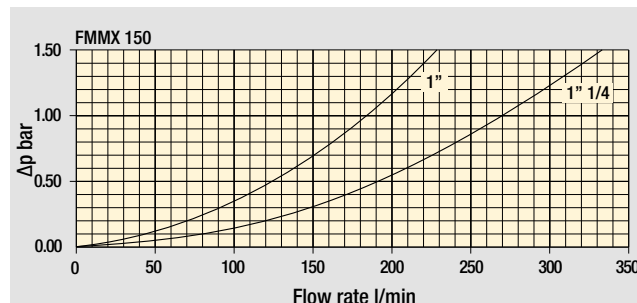
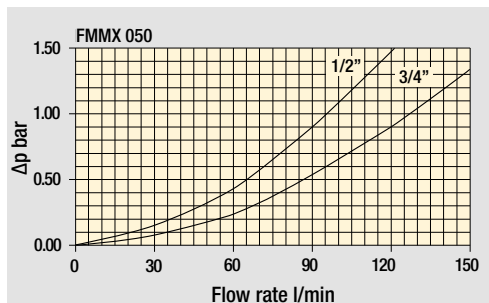
For different pressure drop or fluid viscosity we recommend to use our selection software available on www.mpfiltri.com.

You can also calculate the right size using the formulas present on the FILTER SIZING paragraph at the beginning of the full catalogue or at the beginning of the filter family brochure. Please, contact our Sales Department for further additional information.

Hydraulic symbols

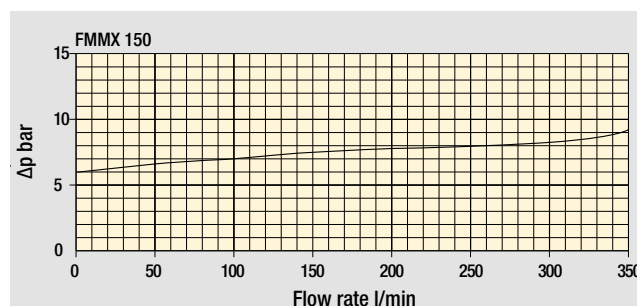
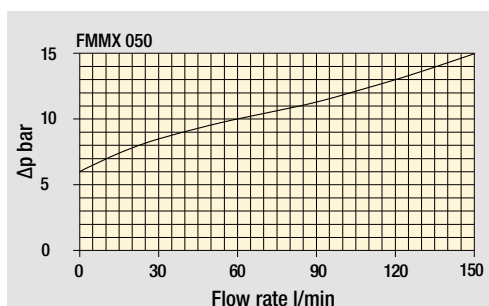
Filter series	Style S	Style B	Style T	Style D
FMMX 050	•	•	•	•
FMMX 150	•	•	•	•

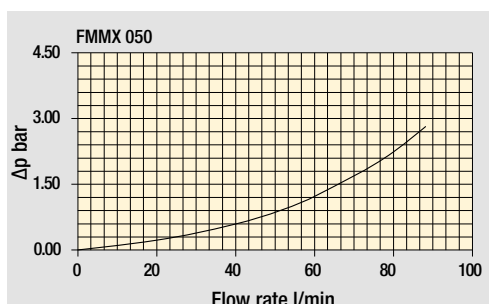


Pressure drop

Filter housings
 Δp pressure drop



Bypass valve
pressure drop



Filter housing
with check valve

The curves are plotted using mineral oil with density of 0.86 kg/dm³ in compliance with ISO 3968. Δp varies proportionally with density.

Designation & Ordering code

COMPLETE FILTER

Series and size		Configuration example: FMMX050									
FMMX050 Filter featuring  Filter Element		3	B	A	G	A10	N	Z01	EX		
Length											
1 2 3 4 5											
Valves											
B With bypass 6 bar											
D With check valve, with bypass 6 bar											
Seals											
A NBR											
V FPM											
Connections											
A M18x1.5 - ISO 6149											
B M22x1.5 - ISO 6149											
C G 1/2"											
D G 3/4"											
E 1/2" NPT											
F 3/4" NPT											
G SAE 8 - 3/4" - 16 UNF											
H SAE 12 - 1 1/16" - 12 UN											
Filtration rating (filter media)											
A03 Inorganic microfiber 3 µm											
A06 Inorganic microfiber 6 µm											
A10 Inorganic microfiber 10 µm											
A16 Inorganic microfiber 16 µm											
A25 Inorganic microfiber 25 µm											
Element Δp											
N 20 bar											
Executions											
											
Z01 Upper connection for clogging indicator											
Z02 Without connection for clogging indicator											
Z03 Frontal connection for clogging indicator											
Zxx Customized											
Certifications											
EX ATEX certifications											

FILTER ELEMENT

Element series and size		Configuration example: HPX050					
HPX050 Filter Element with  feature		3	A10	A	N	Z01	
Element length							
1 2 3 4 5							
Filtration rating (filter media)							
A03 Inorganic microfiber 3 µm							
A06 Inorganic microfiber 6 µm							
A10 Inorganic microfiber 10 µm							
A16 Inorganic microfiber 16 µm							
A25 Inorganic microfiber 25 µm							
Seals							
A NBR							
V FPM							
Element Δp							
N 20 bar							
Execution							
							
Z01 MP Filtri standard							
Zxx Customized							

CLOGGING INDICATORS

See page 729

DEH Electrical differential pressure indicator 420 bar

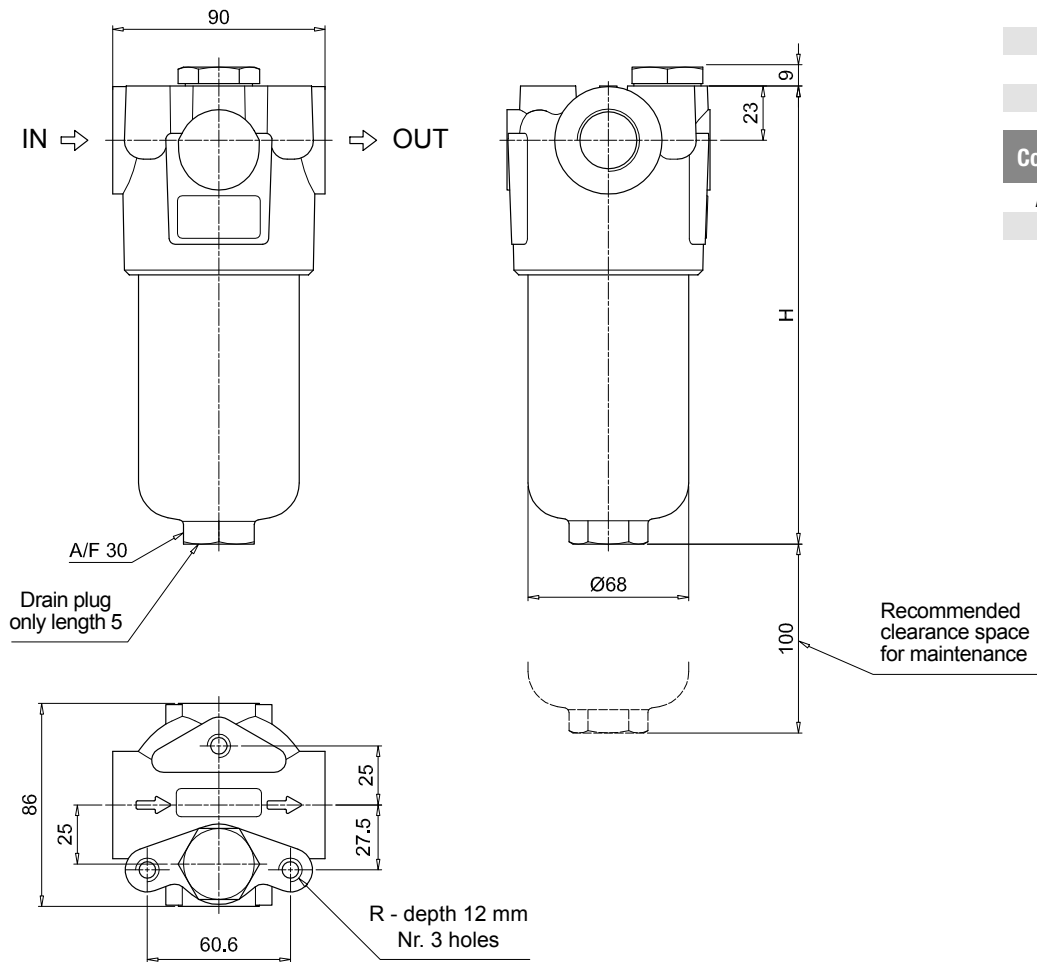
DVM Visual differential pressure indicator

DVA Visual differential pressure indicator

PLUGS

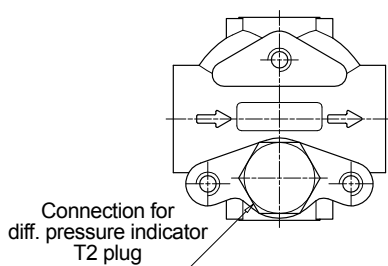
See page 747

T2 Plug

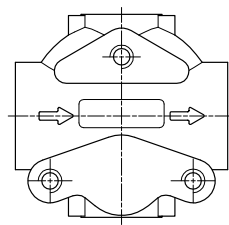


FMMX050	
Filter length	H [mm]
1	158
2	195
3	237
4	285
5	407
Connections	R
A-B-C-D	M10
E-F-G-H	3/8" UNC

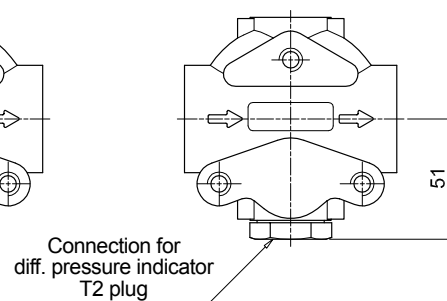
Execution P01



Execution P02



Execution P03



FMMX FMMX150

Designation & Ordering code

COMPLETE FILTER

Series and size **FMMX150** Filter featuring **MY CLEAN** Filter Element

Config. example: **FMMX150** **2** **B** **A** **D** **2** **M25** **N** **Z01** **EX**

Length
1 | **2** | **3**

Valves
S Without bypass | **B** With bypass 6 bar

Seals
A NBR | **V** FPM

Connections
C G1" | **F** 1 1/4" NPT
D G1 1/4" | **G** SAE 16 - 1 5/16" - 12 UN
E 1" NPT | **H** SAE 20 - 1 5/8" - 12 UN

Connections for differential indicator
1 Without connection
2 Upper connection
3 Frontal connection

Filtration rating (filter media)
A03 Inorganic microfiber 3 µm
A06 Inorganic microfiber 6 µm
A10 Inorganic microfiber 10 µm
A16 Inorganic microfiber 16 µm
A25 Inorganic microfiber 25 µm
M25 Wire mesh 25 µm

Element Δp
N 20 bar

Execution
zerospark
Z01 MP Filtri standard
Zxx Customized

Certifications
EX ATEX certifications

FILTER ELEMENT

Element series and size **HPX150** Filter Element with **MY CLEAN** feature

Configuration example: **HPX150** **3** **A10** **A** **N** **Z01**

Element length
1 | **2** | **3**

Filtration rating (filter media)
A03 Inorganic microfiber 3 µm
A06 Inorganic microfiber 6 µm
A10 Inorganic microfiber 10 µm
A16 Inorganic microfiber 16 µm
A25 Inorganic microfiber 25 µm
M25 Wire mesh 25 µm

Seals
A NBR
V FPM

Element Δp
N 20 bar

Execution
zerospark
Z01 MP Filtri standard
Zxx Customized

CLOGGING INDICATORS

See page 729

DEH Electrical differential pressure indicator 420 bar

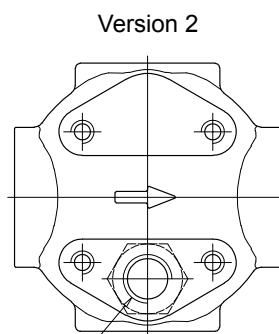
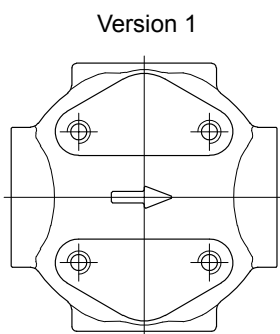
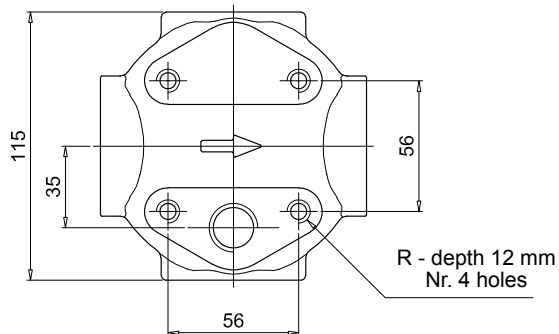
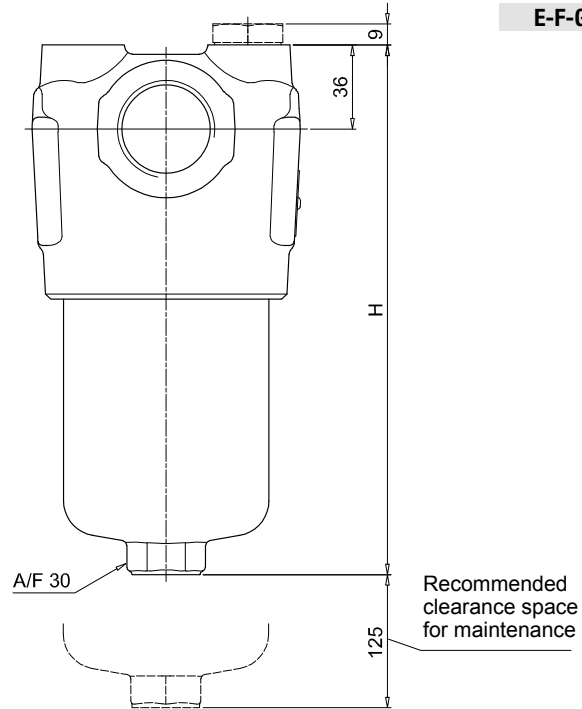
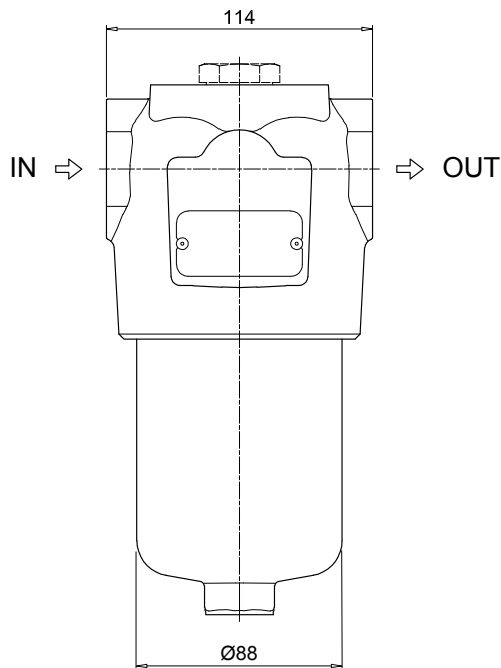
DVM Visual differential pressure indicator

DVA Visual differential pressure indicator

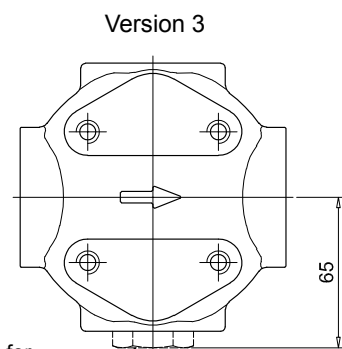
PLUGS

See page 747

T2 Plug



Connection for differential indicator
T2 plug not included



Connection for differential indicator
T2 plug not included

FMMX150

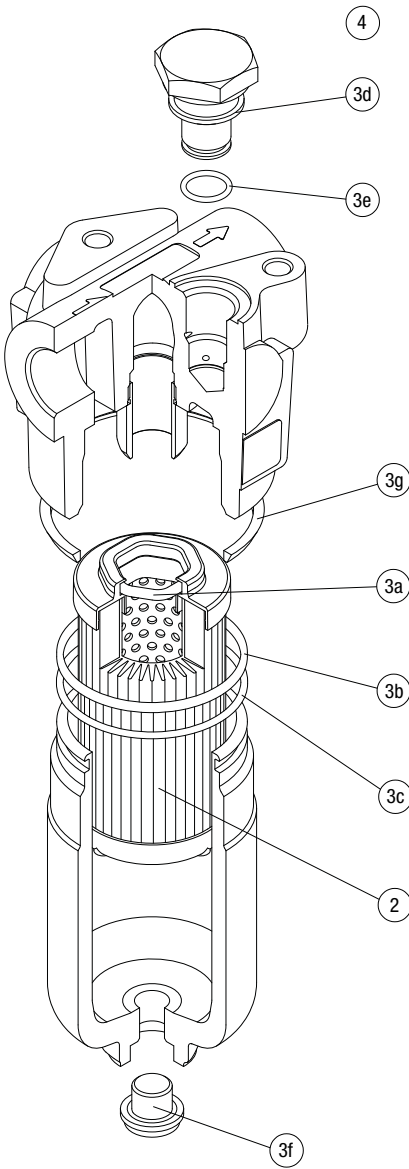
Filter length	H [mm]
1	230
2	340
3	415

Connections	R
C-D	M10
E-F-G-H	3/8" UNC

FMMX SPARE PARTS

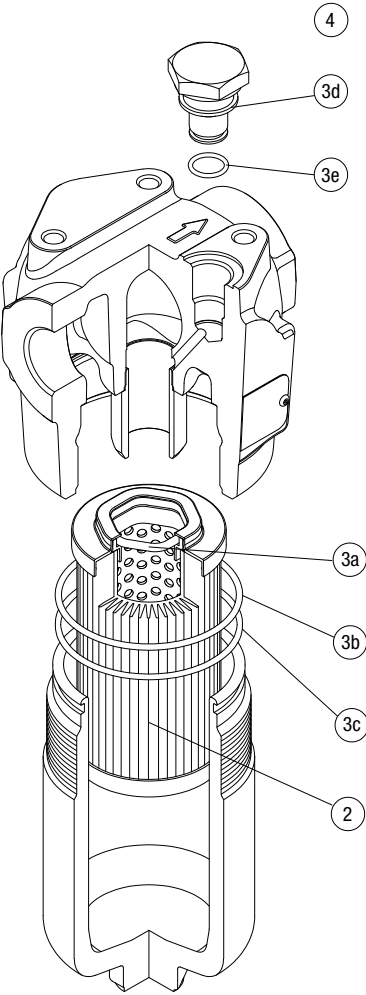
Order number for spare parts

FMMX 050



Item:	Q.ty: 1 pc.	Q.ty: 1 pc.	Q.ty: 1 pc.
Filter series	Filter element	Seal Kit code number	Indicator connection plug
FMMX 050	See order table	02050864	02050865
		T2H	T2V

FMMX 150



Item:		Q.ty: 1 pc.		Q.ty: 1 pc.		Q.ty: 1 pc.	
		2		3 (3a ÷ 3e)		4	
Filter series	Filter element	Seal Kit code number		Indicator connection plug			
		NBR	FPM	NBR	FPM		
FMMX 150	See order table	02050868	02050869	T2H	T2V		

FILTERS FOR POTENTIALLY EXPLOSIVE ATMOSPHERE

Designation & Ordering code

DIFFERENTIAL PRESSURE INDICATORS									
Series		Configuration example 1: DE H 50 F A 48 P01							
DE Electrical differential pressure indicator		Configuration example 2: DV X 70 V P01							
DV Visual differential pressure indicator									
Type	DE	DV							
A With automatic reset	-	•							
M With manual reset	-	•							
H Stainless steel hazardous area 420 bar	•	-							
X Stainless steel standard type 420 bar	-	•							
Y Stainless steel optional type 420 bar	-	•							
Pressure setting	DEH	DVA	DVM	DVX	DVY				
50 5.0 bar	•	•	•	•	•				
70 7.0 bar	•	•	•	•	•				
95 9.5 bar	-	•	•	•	•				
Seals	DEH	DVA	DVM	DVX	DVY				
H HNBR	-	•	•	•	•				
V FPM	•	•	•	•	•				
F MFQ	•	-	-	-	-				
Thermostat	DEH								
A Without thermostat	•								
T With thermostat	-								
Electrical connections	DEH								
48 Connection via three-core cable - fitting M20x1.5	•								
49 Connection via four-core cable - fitting 1/2" NPT	•								
70 Connection IEC 61076-2-101 D (M12)	•								
Option									
P01 MP Filtri standard									
Pxx Customized									

PLUGS			
Series		Configuration example X2 H	
T2 Plug			
X2 Stainless Steel plug 420 bar			
X3 Stainless Steel plug 700 bar (only for FZH)			
Seals	T2	X2	X3
H HNBR	•	•	•
V FPM	•	•	•
F MFQ	-	•	•